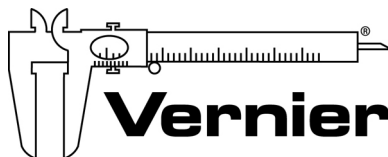
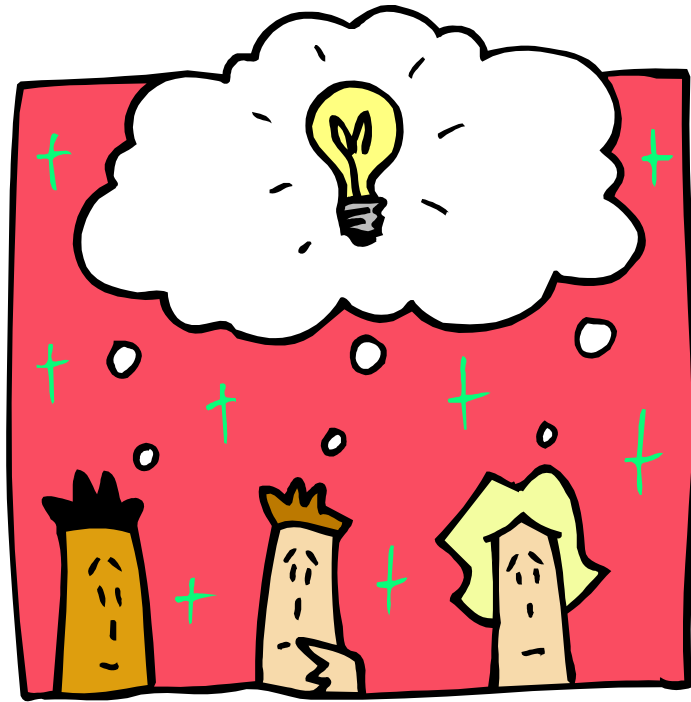


# A Guide to Grant Writing



Measure. Analyze. Learn.™

# A Guide to Grant Writing

## Obtaining Funds for Data-Collection Technology

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*Nothing is  
more  
powerful  
than an idea  
whose time  
has come –*

Victor Hugo

As district funds are reallocated to other programs, many educators are forced to look to alternative sources of funding for technology in their classrooms. Technology in your classroom doesn't have to be out of reach. There is plenty of grant money out there for the asking—the hardest part is finding it. Once you have located a source that matches your needs, it is simply a matter of writing a grant proposal and following through with the process. This guide will help you write a successful grant proposal and provide you with links to available funding sources.



## Working with Your Idea

Once you have an idea that you would like to have funded, it is helpful to sit down with your colleagues and brainstorm about what you would like to include in your grant proposal. Many ideas on the same topic may lead to a more comprehensive grant proposal. Be open-minded and don't be afraid to dream.

After you've generated a list of things you would like to include, it is time to fine-tune the ideas. Think about what it would take to implement your idea and make it a reality. What type of equipment would you need? What software would be necessary? How will you train the teachers to use the new technology? Make a list of everything you will need to accomplish your goal. Don't forget to include items such as batteries, cables and software.

*The best  
way to have  
a good idea  
is to have  
lots of ideas*

– Linus  
Pauling

# Finding a Funding Source

*Lack of  
money is no  
obstacle.  
Lack of an  
idea is an  
obstacle. –*

Ken Hakuta

Now that you have an idea, you will need to find a funding source. Many sources are available including federal and state agencies, foundations, major corporations, small businesses, local organizations and district programs. Many of these sources have information about their funding programs on the internet and links to them can be found below. A search using a good search engine, such as Google, will produce many web pages with information about funding sources and grant writing. While it may seem logical to look to governmental agencies and large corporations for funding, don't overlook your local PTA, service organizations, or district foundations. They often have funding available that goes unused.

Up-to-date grant opportunities can be found on the Vernier web site at [www.vernier.com/grants](http://www.vernier.com/grants)

# Writing Your Proposal

Now that you have identified a few possible funding sources, it is time to find out a bit more about your funders. Take the time to research the organization or company to determine their criteria. It may be beneficial to contact those sources through a letter or phone call. It is important to get a copy of their grant guidelines and follow the guidelines closely. On the right are some tips on preparing a successful proposal.



*Money never starts an idea; it is the idea that starts the money. –*

W.J. Cameron

## Tips:

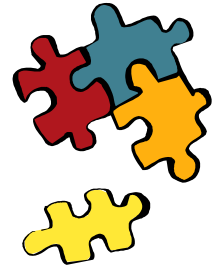
1. **Be realistic, factual and specific.** Don't talk in generalities or emotional terms.
2. **Use language anyone can understand.**
3. **Choose a format that is clear and easy to read.**
4. **Know your funder.** Research the funder's guidelines to make sure you're meeting them.
5. **Start with a brief summary.** This helps to focus the reader on your request.
6. **Propose a realistic budget.** Don't ask for more than you need, make sure the figures are correct and keep a record of how those figures were calculated.
7. **Submit all of the requested application materials.**
8. **Take your time.** Well-written, thought-out proposals are much better received than harried ones.
9. **Read the instructions, read the instructions, read the instructions.**
10. **Meet the deadline for your application.**

Information from Technology in Education

# Putting It All Together

## Title Page

Fill out all of the basic information, such as your name, address, phone number, who the grant is for, the name of the program, the total cost of the program, and a brief, but concise summary of the program needs and goals.



## Statement of Problem

Describe your problem and how you plan to solve it. This part needs to be very moving and motivating. Focus on the need and your objectives. Describe who will benefit from this program, and highlight how many people your program will serve. You need to create compelling interest in your program.

## Goals

Define your goals and objectives. Reveal your vision. Create enthusiasm and excitement for how your program goals will improve and enrich a poor situation.

## Plan of Action

Provide details for how you will meet your goals and objectives. Explain what materials and services you will need, and exactly how they will be used. Document a clear plan of action, and explain how you will carry it out. If this is a time-related program, show a detailed timeline.

## Staff and Facilities

Identify everyone involved in your project. Determine how you or your staff will implement the plan. Describe the facilities and any equipment necessary for the success of your program. If appropriate, mention whether you or others have had special training that relates to your program.

## Evaluation

Document how you will determine the success of the program throughout its duration. Detail how you will determine if your goals and objectives have been met.

## Budget

Define program costs and expenses. Be sure to include everything from equipment to shipping. Be realistic and accurate with budget information. Identify who will manage the money and how they will account for all financial dealings.

Information from The Body, Heart & Soul of Grant Writing, [www.friendcalib.org/newsstand/f3grant.htm](http://www.friendcalib.org/newsstand/f3grant.htm)

# Getting Help

Feel like you could use a little help with your grant writing? There are some wonderful, useful sites available to guide you every step of the way. Some of those sites include:



## **Fundraising and Grantwriting Resources**

([www.fundsnetsservices.com/grantwri.htm](http://www.fundsnetsservices.com/grantwri.htm))

A comprehensive source for grant writing. Includes links to sites on writing successful grants as well as applications, forms and fundraising information.

## **EPA Grant-Writing Tutorial**

([www.epa.gov/seahome/grants/src/grant.htm](http://www.epa.gov/seahome/grants/src/grant.htm))

This interactive software tool walks you through the grant-writing process and helps you learn to write more competitive grants. The EPA developed this program to help those communities and non-profit organizations identify financial assistance opportunities for their environmental-oriented development programs. Also, this program was developed to make it easier for applicants to produce more competitive grant applications. Sections include Enhancing a Proposal, Program Specifics, Completing Forms, Mock Grant-Writing Activity, Examples, Reference, Resources/Contacts, and a Glossary.

## **Non-Profit Guides**

([www.npguides.org/index.html](http://www.npguides.org/index.html))

Designed to help you win grant funds for your organization. Includes a guide to writing funding proposals and some sample letters, budgets and applications as well as links to other grant-writing sites.

## **Grantseeker's Checklist**

([www.montana.edu/wwwvr/checklist.html](http://www.montana.edu/wwwvr/checklist.html))

Includes a set of tips on writing a successful grant proposal. Step-by-step checklist makes sure you didn't overlook anything.

*Great ideas  
need landing  
gear as well  
as wings. –*

C.D. Jackson

## Supporting Your Idea

Many funders are interested in seeing literature to substantiate your claim that your idea will improve things in your classroom. We have compiled a list of support articles on the benefits of the use of computers, calculators, and handhelds for data collection in the classroom. Many of the available articles can be accessed directly on the internet. You will find a list of reference articles at the end of this document.

## Following Up on Your Grant

Once you've been awarded a grant, it is important to follow up with the funder on expectations and payment information. Even if you were not awarded the grant, follow up with the funder to see what might have been done differently. Good luck with the grant writing process!



## Reference Articles

### General

Arnold, Steve, Pat Taylor and Jacqueline Spencer. **“The Use of Calculator-Based Laboratory Equipment in Teaching Math, Chemistry, and Biology.”** Inquiry. 3 Fall 1998, 6-8.

**Apple K12 Effectiveness Reports**, Apple Computer, Inc.  
<[www.apple.com/education/k12/leadership/effect8.html](http://www.apple.com/education/k12/leadership/effect8.html)>

**Apple Curriculum Solutions: Articles and Research**, Apple Computer, Inc.  
<[www.apple.com/education/k12/curriculumsolutions/research/](http://www.apple.com/education/k12/curriculumsolutions/research/)>

Elliott, Dean. **“Computer-Based Data Collection and Analysis Tools.”** Fall 2000.  
<[www.arches.uga.edu/~delliott/courses/edit6170/DeanIDPortfolio.pdf](http://www.arches.uga.edu/~delliott/courses/edit6170/DeanIDPortfolio.pdf)>

**Evaluation of the Calculator-Based Laboratory System.** Stanford University. 2000

Friedrichsen, Patriacia Meis, Thomas M. Dana, Carla Zembal-Saul, Danusa Munford, and Chen

Tsur **“Learning to Teach with Technology Model: Implementation in Secondary Science Teacher Education.”** Journal of Computers in Mathematics and Science Teaching (2001) **20**(4), 377-394.

<[www.aace.org/dl/files/JCMST/JCMST204377.pdf](http://www.aace.org/dl/files/JCMST/JCMST204377.pdf)>

Hsi, Sherry **"Bridging Web-based Science with Outdoor Inquiry using Palm Computers."** Concord Consortium. 2000.

<[cilt.berkeley.edu/synergy/Sherry\\_AERA00\\_posternotes%20d.pdf](http://cilt.berkeley.edu/synergy/Sherry_AERA00_posternotes%20d.pdf)>

Krajcik, Joseph S. and Layman, John W. **"Microcomputer-Based Laboratories in the Science Classroom"**. University of Michigan and University of Maryland.

<[www.educ.sfu.ca/narstsite/publications/research/microcomputer.htm](http://www.educ.sfu.ca/narstsite/publications/research/microcomputer.htm)>

Lapp, Douglas Ph.D. and Dr. Vivan F. Cyrus **“Using Data Collection Devices to Enhance Student Understanding.”** Central Michigan University. 2000.

<[calcnnet.cst.cmich.edu/faculty/lapp/MT2000.pdf](http://calcnnet.cst.cmich.edu/faculty/lapp/MT2000.pdf)>

This same paper can be found in Mathematics Teacher. 93 September 2000. 504-509.

The Probeware Group. **“Probeware: A Definition”**. The Concord Consortium.

<[www.concord.org/themes/probeware\\_overview.pdf](http://www.concord.org/themes/probeware_overview.pdf)>

Stager, Gary S. **“Empowering Young Mathematicians and Scientists Through Technology.”**

Curriculum Administrator. October 1998. <[www.stager.org/articles/Mathsciencecafeature.html](http://www.stager.org/articles/Mathsciencecafeature.html)>

Tinker, Bob. **“The Whole World in Their Hands.”** <[www.concord.org/pubs/pdf/future.pdf](http://www.concord.org/pubs/pdf/future.pdf)>

Thornton, Ronald. **“Using the Results of Research in Science Education to Improve Science Learning.”** Center for Science and Mathematics Teaching, Tufts University. 1999.

<[probesight.concord.org/what/articles/thornton.pdf](http://probesight.concord.org/what/articles/thornton.pdf)>

**“Understanding the Total Cost and Value of Integrating Technology in Schools.”**

International Data Corporation. 1997.

## Chemistry

Cherkas, Andy. **Review of Computer and Calculator Data Collection with Vernier Workshop.** CHEM13 News. Nov. 2000. 5.

Cortés-Figueroa and Deborah Moore. **“Using CBL Technology and a Graphing Calculator to Teach the Kinetics of Consecutive First-Order Reactions.”** Journal of Chemical Education. 76 May 1999. 635-638.

Durick, Mary Ann. **“The Study of Chemistry by Guided Inquiry Method Using Microcomputer-Based Laboratories.”** Journal of Chemical Education 78 (2001): 574-575.

Jones, Rebecca B. **“Life before and after Computers in the General Chemistry Laboratory.”** Journal of Chemical Education. 77 August 2000. 1085-1087.



Rayner-Canham, et al. **"A Computer-Interfaced Physical Chemistry Laboratory: Some Personal Experiences".** L'Actualité chimique canadienne. March 2000. 16-17.

Sale, Cynthia L, Nicole M. Ragan and Maureen Kendrick Murphy. **"Using Calculator-Based Laboratory Technology to Conduct Undergraduate Chemical Research."** Journal of Chemical Education 78 (2001) 694-696.

## Physics

Angell, Carl and Trond Ekern, **"Measuring Friction on Falling Muffin Cups."** The Physics Teacher. 37 March 1999. 181-182.

Bernhard, Jonte. **"Can a Combination of Hands-on Experiments and Computers Facilitate Better Learning in Mechanics?"**. CAL-laborate. 5 October 2000.  
<science.uniserve.edu.au/pubs/callab/vol5/bernhard.html>

Dimitriadis, Panagiotis et al. **"Linear motion study through graphs- A new technology - based learning environment."**

Fay, Sarah and Angela Portenga. **"Hey You! Shut the Refrigerator Door!"**. The Physics Teacher. 36 Sept. 1998. 336-338.

George, Elizabeth and Jesus Vazquez-Abad. **"Effects of instructional technologies on student learning in the undergraduate physics laboratory."** NSF Project Proposal. Wittenberg University.  
<userpages.wittenberg.edu/egeorge/per.html>

Hartley, Kendall W., David Fowler and Robert Mann. **"Probing Student Minds."** The Science Teacher. October 1999. 34-39.

Laws, P. W. **"Millikan Lecture 1996: Promoting active learning based on physics education research in introductory physics courses."** American Journal of Physics. 65 January 1997. 14-20.

**Making Connections with the MTV® Generation is Easier, More Interesting When Science and Math Teachers Use TI's Calculator-Based Laboratory™ System.** Texas Instruments.  
<education.ti.com/global/news/release/cg-407.html >.

Phillips, Dennis W. **"Physics on Graphing Calculators."** The Physics Teacher. 37. April 1999. 230-231.

Redish, Edward F., Jeffery M. Saul, and Richard N. Steinberg. **"On the Effectiveness of Active-Engagement Microcomputer-Based Laboratories."** American Journal of Physics. Volume 65. 45 – 54 (1997)  
<www.physics.umd.edu/perg/papers/redish/mb1/mb11.html>

Redish, Edward F., Jeffery M. Saul, and Richard N. Steinberg. **“On the Effectiveness of Active-Engagement Microcomputer-Based Laboratories: Part 2.”**

<[www.physics.umd.edu/perg/papers/redish/mb1/mb12.html](http://www.physics.umd.edu/perg/papers/redish/mb1/mb12.html)>

Redish, Edward F. and Richard N. Steinberg. **“Teaching Physics: Figuring Out What Works.”** Physics Today. January 1999. 24-30.

Rios, José M. and Santosh Madhavan. **“Guide to Adopting Technology in the Physics Classroom.”** The Physics Teacher. 38 February 2000. 94-97.

Russell, David, Keith B. Lucas, and Campbell J. McRobbie. **“Microprocessor Based Laboratory Activities as Catalysts for Student Construction of Understanding in Physics.”** Queensland University of Technology. 1999.

<[www.aare.edu.au/99pap/luc99196.htm](http://www.aare.edu.au/99pap/luc99196.htm)>

Svec, Michael. **“Improving Graphing Interpretation Skills and Understanding of Motion Using Micro-computer Based Laboratories.”** Furman University June 1999.

<[unr.edu/homepage/crowther/ejse/svec.html](http://unr.edu/homepage/crowther/ejse/svec.html)>.

Sokoloff, David R. and Ronald K. Thornton. **“Using Interactive Lecture Demonstrations to Create an Active Learning Environment.”** The Physics Teacher. 35 Sept. 1997. 340-347.

Thornton, Ronald K. and David R. Sokoloff. **“Assessing student learning of Newton's laws: The Force and Motion Conceptual Evaluation and the Evaluation of Active Learning Laboratory and Lecture Curricula.”** American Journal of Physics. 66 April 1998. 338-352.

## Water Quality

**The Water Quality Project.** Boston Latin Academy.

<[learnweb.harvard.edu/ent/gallery/pop4/pop4\\_1.cfm](http://learnweb.harvard.edu/ent/gallery/pop4/pop4_1.cfm)>

## **Biology**

Lu, Casey R., Burton E. Voss and Lewis J. Kleinsmith, **“The Effect of a Microcomputer-Based Biology Study Center on Learning in High School Biology Students.”** American Biology Teacher. May 1997. 270

## **Special Needs/ Assistive Education**

Lunney, David. **“Everybody Needs to Learn Science: How Assistive Computer Technology Can Help Bring Students with Disabilities into the Mainstream.”** 1997.





presents  
the

## **Vernier Technology Awards**

Sponsored by Vernier Software & Technology

### **Purpose of Award:**

The Vernier Technology Awards will recognize and reward the innovative use of data collection technology using a computer, graphing calculator, or handheld in the science classroom.

### **Eligibility:**

Teachers of science in grades K-College level classrooms

### **Number of Awards: Seven**

One \$3,000 Award for Elementary (grades K-5)

Two \$3000 Awards for Middle Level (grades 6-8)

Three \$3000 Awards for High School (grades 9-12)

One \$3000 Award for College

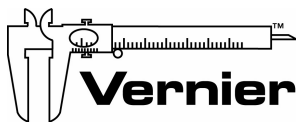
### **Recognition**

The award-winning teachers will receive an expense-paid trip to the NSTA National Convention (expenses not to exceed \$1,000), a check for \$1,000, and \$1,000 in Vernier products. The check, products certificate, and a commemorative plaque will be presented during the NSTA Awards Banquet at the NSTA National Convention.

### **Application process**

Fellow science teachers or school principals may nominate a teacher for the Vernier Technology Awards. Self-nominations are also accepted.

**Application forms are available at <http://www.vernier.com/grants/nsta.html>**



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